

# Tooele Chemical Agent Disposal Facility Mustard Destruction Campaign



**Presentation to the  
Mercury Work Group  
May 9, 2006**

Overcoming Challenges with Integrity

# Presentation Summary

- Background on the Tooele Chemical Agent Disposal Facility (TOCDF)
- Overview of Mustard Stockpile
- Mustard Ton Container Characterization
- TOCDF Ton Container Processing
- Estimated Potential Mercury Emissions

# Tooele Chemical Agent Disposal Facility (TOCDF) History

- Deseret Chemical Depot (DCD) one of nine U. S. chemical agent stockpile facilities
  - Other facilities in Alabama, Arkansas, Colorado, Indiana, Kentucky, Oregon (also Johnston Atoll in South Pacific, and Maryland, both now complete)
- DCD's initial inventory was largest percentage (~43%) of the U.S. chemical weapons stockpile
- TOCDF constructed to facilitate DCD stockpile destruction U.S. became party to Chemical Weapons Convention (CWC) Treaty in April 1997
- CWC Treaty established deadlines for safe destruction of chemical weapons

# Deseret Chemical Depot (DCD) Stockpile

- DCD stockpile incineration began at TOCDF August 1996
- Approximately 54% of stockpile stored at Deseret successfully destroyed (as of April 2006)
- Stockpile Nerve Agent (GB and VX) destruction complete – significant public risk reduction
- Mustard (Blister Agent) campaign scheduled to begin late summer 2006
- RCRA Class 3 Permit Modification for initiating mustard processing currently within second round of public comment



Overcoming Challenges with Integrity

# TOCDF Mustard Stockpile

- DCD Mustard Stockpile Includes:
  - (~6,400) Ton Containers (TC)
  - (~54,500) 155mm Projectiles
  - (~63,000) 4.2 inch Mortars
- TOCDF will initiate Mustard Campaign with TC Processing



4.2" Mortar



Ton Containers



155mm Projectiles

Overcoming Challenges with Integrity

# Ton Container Characterization

- Potential mercury contamination known to exist in some mustard munitions and containers in varying degrees, apparently due to ton container reuse practices at Rocky Mountain Arsenal
- 98 ton containers sampled as part of characterization project
- Single samples of solid, liquid, and liquid/solid interface were taken from each of the 98 ton containers
- Results show a correlation between low levels of mercury in the liquid phase and low levels of mercury in the solid phase

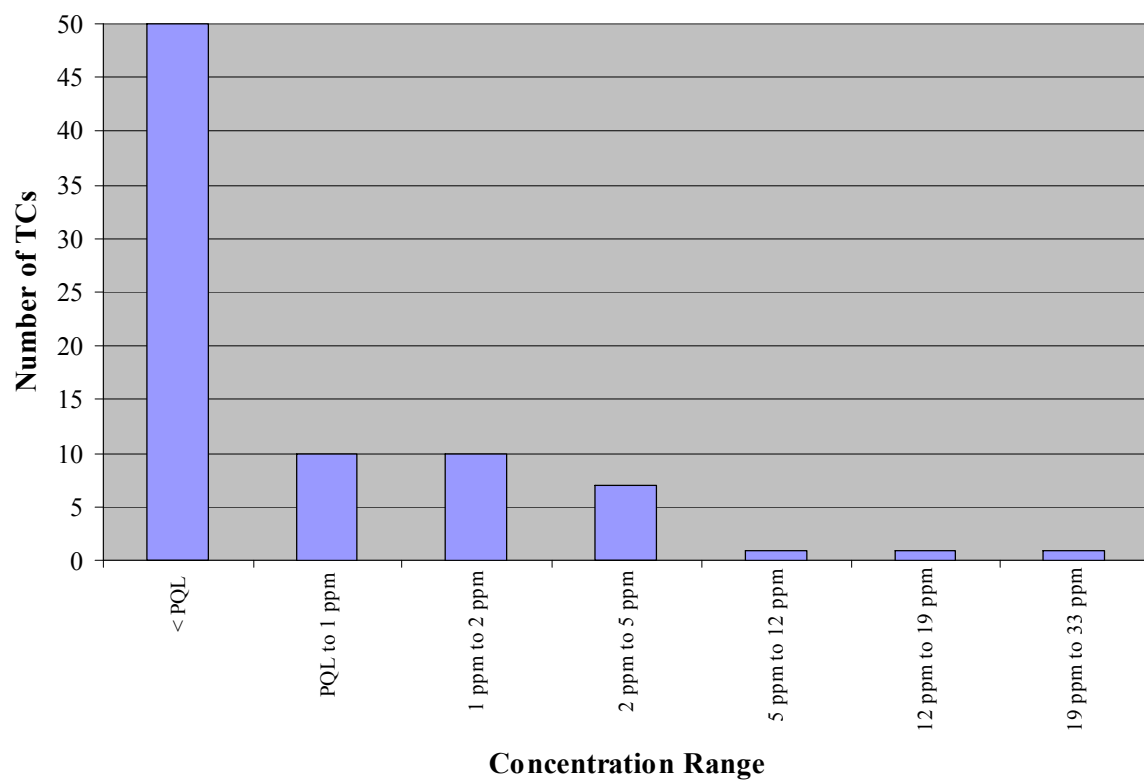
Number TCs	Concentration in Liquid	Concentration in Solid	Est % of TC Inventory
59	< PQL	<1 PPM	60
21	< PQL	1.0-24 PPM	21
7	1-10 PPM	210-4780 PPM	7
3	11-20 PPM	1600-10300 PPM	3
3	21-30 PPM	2140-5590 PPM	3
0	31-40 PPM	N/A	0
2	41-50 PPM	2010-2440 PPM	2
2	51-60 PPM	2580-3020 PPM	2
1	61-70 PPM	1960 PPM	1

Overcoming Challenges with Integrity



# Ton Container Solids Characterization

Figure 1. Distribution of Low Level Mercury Results



- 60% of baseline TCs had Mercury concentrations in solid fraction <PQL
- 75% of baseline TCs had Mercury concentrations in solid fraction  $\leq 1$ PPM

# TOCDF Mustard Ton Container Processing

- Liquid from each ton container will be sampled in one of two igloo sampling facilities at the Deseret Chemical Depot's Area 10
- TCs will be segregated based on mercury concentrations in liquid and solid heel depths
- TCs with <1 PPM mercury in liquid and solid heel depths <6 inches will be processed using current baseline incineration technology
  - Liquid agent drained and processed in Liquid Incinerator
  - TC and remaining heel processed in Metal Parts Furnace
- Remaining TCs will be set aside for later processing, along with other mustard munitions, following installation of Sulfur Impregnated Carbon Filtration
  - Potential installation of washout and pretreatment process if necessary



Area 10 TC Sampling Facility



# TOCDF Mustard Ton Container Processing

- Compliance with mercury emission standard will be demonstrated via:
  - Segregation and treatment of only TCs with < 1 ppm mercury in liquid mustard during baseline processing
  - Mercury feed rate based on analytical data/trial burn performance for the Liquid Incinerators
  - Continuous sampling of Metal Parts Furnace exhaust gas using EPA approved manual sampling method (40 CFR Part 75 Appendix K)

# Estimated Mercury Emissions During Baseline Processing

- Summary of ton container characterization:
  - Baseline TCs expected to contain <PQL (~0.5 ppm) concentrations of mercury in liquid fraction
  - ~75% of Baseline TCs expected to contain <1PPM mercury in solid fraction
- Mercury emissions from the Metal Parts Furnace are anticipated to be approximately 1 pound
- Mercury monitoring in accordance with 40 CFR Appendix K and EPA-approved alternative monitoring request will provide actual mercury emissions data